



Standard Treatment Workflow (STW) MALE INFERTILITY ICD-11-GB04

WHEN TO SUSPECT?

Inability to conceive even after one year of regular unprotected intercourse.

Evaluation earlier than one year if female age is >35yrs, family history of infertility or very anxious couples. Infertility incidence is

Prevalence - 180 million couples worldwide and 15% of all couples

10-15%.

*Both have contributory factors in 30-40% cases

Male factor solely responsible in 20% and contributory in 30%



Pretesticular

 Hypogonadotrophic hypogonadism, sexual disorders

CAUSES

· Primary testicular failure, cryptorchidism, atrophic testes, testicular tumors, varicocele Post testicular

Testicular

· CABVD, EDO, post vasectomy

HOW TO PROCEED?

Both partners examined simultaneously*

Ensure marriage is consummated, couple has frequent timed intercourse with the knowledge of ovulatary cycle

*Male factor is an under recognised problem and the failure to recognise often leads to social and psychological adverse effects. Often the male is evaluated once the female has been examined thoroughly and this delays the treatment . Greater the duration of infertility

lesser the chance of success

AIM

- · To ascertain contributory male factor
- · Identify potentially correctable
- conditions · Identify incorrectable condtions that may or may not be amenable
- Identify serious underlying medical conditions like pituitary tumors, adrenal tumors, testicular cancer, GUTB, CKD, hypogonadism and other hormonal disorder

to Assisted Reproductive Technique

PHYSICAL EXAMINATION

- · Body habitus (obesity, Klinefelter's). Secondary sexual characters, gynecomastia
- · Penis: hypospadias, epispadias
- · Testes: volume, consistency, masses, contours
- · Epididymis: flat, turgid, nodularity. Vas deferens – present/absent thickened or beaded
- Cords-presence of varicocele. Inguinal or scrotal scar
- · Rectal examination: cyst, dilated seminal vesicles

HISTORY

- · Age of partners and duration of infertility.
- · Use of contraception and lubricants. · Knowledge of ovulation cycle
- · Sexual and ejaculatory dysfunction,
- volume of ejaculate · Medical illness: STD, diabetes, any febrile
- illness within last 3 months chronic bronchitis and any debilitating medical condition
- · H/o Chemotherapy, Radiotherapy · Congenital anomalies, cryptorchidism, hypospadias, Chordee
- Testicular torsion, drug history, trauma and swelling
- · H/o past surgeries(hernia repair, orchiopexy, retroperitoneal surgery)
- · Family history (infertility,consanguinity,genetic
- disorders) Personal history-smoking, tobacco,
- alcohol, caffeine, drug abuse, anabolic steroids
- · Exposure to environmental toxins (pesticides, herbicides, chronic heat and
- radiation, sauna bath, tight non cotton undergarments, laptops & mobile phone) · Partner history: Any menstrual abnormality, infertility evaluation till date

INVESTIGATIONS

SEMEN ANALYSIS (ESSENTIAL)

- · At least 2 samples 2-4 weeks apart; Abstinence of 1-3 days.; Collected in a sterile, medical grade plastic wide mouth container
- · Provided within the lab or transported within an hour at room temperature and examined immediately
- · WHO Semen criteria (2021, 6th edition), Volume 1.4 (1.3 1.5 mL), Total count 39 (35-40), Total motility 42 % (40-43), Progressive motility 30 % (29-31), Immotile sperms 20% (19-20), Vitality 54% (50-56), Morphology 4% (3.9-4)

Normal Semen Analysis: Rule out sexual dysfunctions, Anatomic abnormalities. Female factor and

unexplained

Low volume semen: Incomplete Collection, Retrograde ejaculation, Ejac. duct obstruction, Cong. Absence of VasDeferens, Hypogonadism

DIAGNOSTIC CATEGORIES ACCORDING TO SEMEN ANALYSIS REPORT

- · Azoospermia: Complete absence of sperm to be confirmed by centrifugation of semen and examining pellet
- Obstructive (Epididymal,vasal)
- · Nonobstructive: (Genetic, Chromosomal, Hormonal, CT/RT, Post torsion testes, orchitis, Cryptorchidism, Idiopathic)
- · Oligo-astheno-teratospermia: Isolated Asthenospermia: Antisperm antibodies, Sperm structural defect, Hypogonadism
- Multiple defects: Varicocele, Cryptorchidism, Genital tract infection, Systemic illness, Prolonged abstinence, Drugs (Sulfasalazine, NFT, Colchicine, Chemotherapy, GnRh analogs, Spironolactone, Ketokonazole, Anabolic steroids, cocaine, alcohol. Chemicals: heavy metals, herbicides, organic solvents, fungicides, pesticides)

Note: If a patient is unable to produce semen consider retrograde ejaculation and anejaculation. Further evaluation may require electro ejaculation or vibrator induced ejaculation

OTHER INVESTIGATIONS

- Extended testing SDF (sperm DNA fragmentation) test, ROS (reactive oxygen species), Genetic (karyotyping, Y chromosome micro deletion, CFTR mutation in Congenital absence of Vasdeferens)
- Hormonal assay: Serum FSH, LH, Prolactin, Testosterone, Estradiol, T/E ratio
- Culture: Urine, Semen, Prostatic fluid. Antisperm antibodies, Viability assay, Sperm function tests, Scrotal USG & doppler, TRUS, Genetic studies,
- Testicular biopsy (Multiple bilateral biopsies preferably in a center with facility for cryopreservation)

PHC/CHC

· History and Physical examination

Normal Semen report:

(Rule out unconsummation, sexual dysfunction, anatomic abnormailities) Female partner to be evaluated by gynecologist

Abnormai Semen report:

- Management of reversible nonsurgical causes (Infections) etc.) and surgical cause i.e. varicocoele if surgeon available
- · Preventive measures: Avoid gonadotoxins, gonadotoxic drugs, smoking, tobacco, chronic heat, excess use of mobiles; Encouraging healthy life style: Nutritious diet, regular physical exercise, avoid stress, use of antioxidants and vitamins (Vit. C, Vit E, Zinc)
- For further evaluation refer to district/tertiary hospital

MANAGEMENT

DISTRICT HOSPITAL Hormonal assay and Testicular biopsy

- Management of sexual and ejaculatory dysfunction
- · Management of Varicocele and
- Hypogonadotropic hypogonadism · ART: AIH/AID and counselling for adoption

TERTIARY LEVEL

AZOOSPERMIA

· Additional testing: TRUS, Genetic, ASA, SDF,

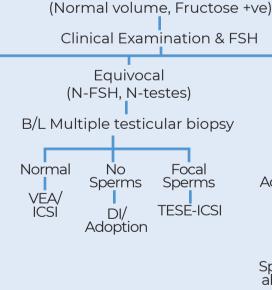
 Advanced surgery: Microsurgical VVA,VEA, Varicocelectomy, TURED, Sperm retreival techniques, Cryopreservation and sperm

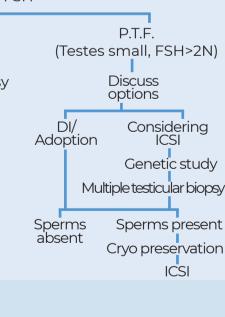
banking Advanced ART: IVF-ET/IVF ICSI

TREATMENT ALGORITHM

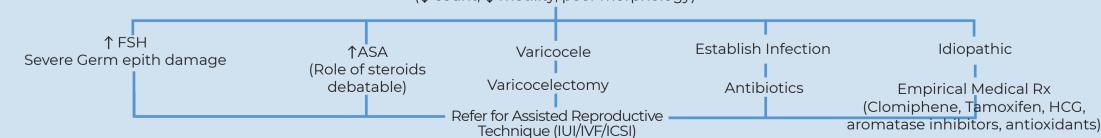
AZOOSPERMIA (Low volume, JpH, Fructose -ve) Retrograde ejaculation ruled out Examine Vas Not palpable Palpable **CABVD** E.D.O. **TRUS CFTR** DI/ Adoption Gene Mutation **Fibrous** Cystic SV & ED Counselling **ICSI** Non-operable **TURED** PESA + ICSI

Obstructive (FSH-N, Epid, turgid) Normal testes Exploration, check vasal patency Needle biopsy (if required) Microsurgical VEA





OLIGO-ASTHENO-TERATOSPERMIA (↓ count, ↓ motility, poor morphology)



NEVER MISS EXAMINING THE MALE PARTNER IN A CASE OF INFERTILE COUPLE

ABBREVIATIONS

AID: Artificial Insemination Donor Artificial Insemination Husband AIH: **ART:** ASA: Anti Sperm Antibodies

Assited Reproductive Technique CABVD: Congenital Absence of Bilateral Vas deferens

DI: EDO: FSH: ICSI:

Donor Insemination **Ejaculatory Duct Obstruction** Follicle Stimulating Hormone **GUTB:** Genito Urinary Tuberculosis Intra Cytoplasmic Sperm Injection **IVF-ET:** Invitro Fertiliztion - Embryo Transfer PESA: PTF: TESE: TRUS:

Percutaneous Epididymal Sperm Aspiration Primary Testicular Failure SV & ED: Seminal Vesicle & Ejaculatory Duct Testicular Sperm Extraction Trans Rectal

TURED: Trans Urethral Resection of Ejaculatory Duct VEA: Vasoepididymal **Anastomosis** VVA:

Vaso Vasostomy https://pmc.ncbi.nlm.nih.gov/articles/PMC9942225/

Ultrasonography

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- This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of DHR for more information: https://dhr.gov.in/ @ Department of Health Research, Ministry of Health & Family Welfare, Government of India.